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TOMATOES
For Oklahoma Gardens

BY H. B. CORDNER

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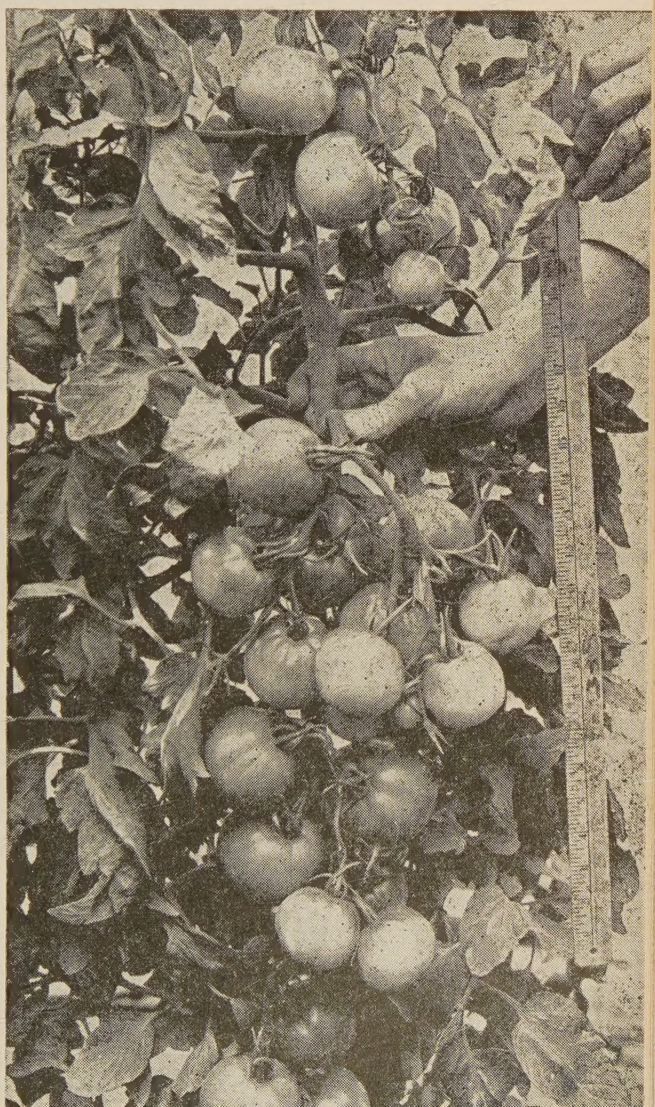
These are greenhouse tomatoes—but early planting of good plants of the right variety can rival them outdoors



OKLAHOMA AGRICULTURAL EXPERIMENT STATION
OKLAHOMA A. AND M. COLLEGE, STILLWATER

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Tomatoes for Oklahoma Gardens

By H. B. CORDNER
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The Problem

Blossom drop which results in unfruitfulness of tomatoes is a serious problem in Oklahoma. From all sections comes the same general complaint: "The tomato plants in my garden are large, vigorously growing and have an abundance of blooms, but do not set fruit. What can I do to make them more productive?"

The Cause of Unfruitfulness in Tomatoes

The principal cause of blossom drop in tomatoes is high atmospheric temperatures. When the temperature approaches 90° F. and higher, the floral parts fail to function in a normal manner; and as a result pollenation and fertilization of the ovules (seed) is prevented. Seed development is essential to fruit development in tomatoes, and therefore the blossoms or small fruits drop off when fertilization of the ovules does not take place. A dry atmosphere, high winds and a deficiency of moisture in the soil are factors of secondary importance which in association with high temperatures may intensify the blossom drop. When the temperature is near the critical point these factors may become of practical importance in relation to fruit set.

Fruit development and vine development in tomato plants are competitive processes and therefore unfruitful plants are usually large and vegetative because of the extra quantities of essential foods and nutrients available for vine development.

The Solution to The Problem

Since the blossom drop is caused principally by high temperatures, the solution to this problem is to have the plants flowering at a time when the temperatures are low enough to be favorable to fruit set. This is accomplished in two ways: (1) By setting sturdy plants into the garden as soon as danger of frost is past, and (2) by using early varieties or those which produce a large number of blossoms early in the season.

How to Get Good Plants

A good tomato plant should be about 6 to 8 inches in height with a stem diameter of about one-quarter inch. Such

a plant can be grown in 6 to 7 weeks in a good soil, if proper attention is given to temperature and moisture control and the plant is allowed proper space in which to develop. A minimum spacing of 2 x 2 inches should be used in growing plants. Individual containers such as 3- or 4-inch pots, tin cans, or paper bands would be helpful, since at transplanting time the plants could be set in the field with little or no injury to the root systems.

It is difficult to find good tomato plants on the open market at transplanting time. Because of the demand for cheap plants, most plant growers crowd their flats and plant beds with several times the number of plants that should be grown there, and small, weak, and spindling plants result. Better plants may be grown at home or may be secured by making advance arrangements with the plant grower for the production of plants according to your specifications as to variety and spacing and the use of individual containers. It should be remembered that *half a dozen well grown plants set in the garden will furnish more tomatoes for the home than several times this number of poorly grown ones.*

Tests Have Shown Best Varieties

Variety studies conducted by the Department of Horticulture at the Oklahoma Agricultural Experiment Station* have consistently demonstrated that those varieties of tomatoes which flower and fruit early in the season are most productive. Varieties which have the determinate type of vine, in which the growth of the main stem and lateral branches is terminated with flower clusters, produce a large proportion of their blossoms early in the season and are usually early and productive. However, such varieties are likely to be lacking in foliage which is essential to provide shade for the fruits.

The variety PENN STATE has been earliest and usually most productive in the trials, although this variety is strongly determinate (lacks good foliage development) and the fruits are relatively rough and have deep green shoulders. The varieties STOKESDALE and PRITCHARD are slightly later than Penn State but are considered best for home gardens and commercial plantings in most parts of Oklahoma. BOUNTY is early and proved to be fairly productive in the 1941 trials.

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* New varieties of vegetables are constantly under test at the Oklahoma Agricultural Experiment Station to determine their adaptability to Oklahoma conditions. A list of the varieties recommended on the basis of these tests may be obtained from the Department of Horticulure.

VARIETIES FOR WESTERN OKLAHOMA

The blossom drop problem is more acute in the western sections of the state; and for these areas the varieties PORTER, DANMARK and SUMMERSET are of interest, because they set fruits at relatively high temperatures. The Porter variety is of the plum type with small pink fruits and is recommended only where larger fruited varieties cannot be grown successfully. The Danmark and Summerset varieties produce red fruits of medium to small size and set fruits under rather adverse conditions. These varieties are of special interest since their fruits are uniformly colored (green shoulder is absent) and therefore they ripen or develop the red color uniformly.

Related References Available at A. and M. College

1. Hotbeds and Cold Frames. Okla. Ext. Cir. 211.
2. Hotbeds and Cold Frames. U. S. D. A. Farmers' Bul. 1743.
3. Three-year Summary of Tomato Variety Trials. Mimeographed Circular: Horticulture Dept. 1941.
4. Vegetable Varieties for Oklahoma. Mimeographed Circular; Horticulture Department.

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